

STREET CONSTRUCTION (E-PLAN) REQUIREMENTS **(*** Commercial Site ***)**

Requirements for and information on the “E-Plan” for R/W improvements related to a commercial site shall contain, but not limited to, the following:

1. GENERAL REQUIREMENTS:

- 1.1. **PLAN SIZE:** All plans shall be submitted on standard E-size sheets - 22” high x 34” wide. Each sheet shall have a border of ½” from the top, bottom, and right edges and a 2” border from the left edge with the ODOT Title Block. Refer to Ohio Department of Transportation, Location and Design Manual Volume 3.
- 1.2. **PLAN LAYOUT:** Orientation of plan views shall be with the north arrow up to TOP of plan sheet or to the RIGHT.
- 1.3. **GRAPHIC SCALE:** Show on each plan sheet or specific view (plan/detail/section/profile) the numeric scale AND a graphic of the scale.
- 1.4. **PLAN NUMBER ASSIGNMENT:** The street plan number will be assigned by the Accela plan tracking system at the time of submittal for initial review. For initial submittal – use the “X” in each of the 4 positions for the plan sequence number.
- 1.5. **STREET STATIONING:** Station the centerline of each street. Each street is to have its own stationing. Stationing should progress up from SOUTH-to-NORTH and from WEST-to-EAST. Provide a “Basis of Stationing” statement explaining the origin and basis of stationing. Whenever possible, use established stationing from previous (project) plans and make reference to the plan number(s) in the statement. When establishing new stationing, set an even station at the centerline of the nearest street intersection and describe in the (basis of stationing) statement. When stationing is newly established, include in the statement that is being set for this project. Station equations or negative stationing on the plans will not be accepted.
- 1.6. **REFERENCE TO RELATED DRAWINGS:** Notate on the plans any drawing related to or interfacing with, or adjoining, this project. Examples of drawings to reference are street construction plans of existing roads this project fronts or stationing is based off of, adjoins or ties into; a residential subdivision plan that constructed the existing street fronting this project; CC-plans on private storm sewers that tie-in to a storm sewer on this plan; sanitary sewer plan; Water Service Plan plans, street construction plans on other active projects this project interfaces with; or street construction plans of other projects which extend a street from this project.
- 1.7. **SURVEY HORIZONTAL & VERTICAL CONTROL:**
 - 1.7.1. **Horizontal Control:** The Ohio State Plane Coordinate System and North American Datum of 1983 (2007 NSRS).
 - 1.7.2. **Vertical Control:** North American Vertical Datum 1988 (NAVD 88) shall be used on all projects. All temporary benchmarks and project/site elevations shall be based upon a source bench mark of a third order or better monument system established and maintained by the Franklin County, OH Engineer’s office. The 1929 North American Vertical Datum (NAVD) datum should only be used when the 1988 (NAVD) elevations are unavailable and must be approved, in writing, by the City in advance of initial plan submittal.
- 1.8. **PLAN REVIEW FEES:** Fees are based on an hourly rate and are invoiced at the time all review comments have been addressed. Final payment must be received before mylars are routed for signature.
- 1.9. **CITY ADA TRAINING REQUIREMENT:** As a minimum, the Engineering consultant’s project manager and design engineers assigned to the project must have had ADA ramp training by the City of Columbus. ADA training sessions are listed on the website <http://pubserv.ci.columbus.oh.us/transportation/ADA/ADATraining.htm>
- 1.10. **TRAFFIC SIGNAL DESIGN:** All traffic signal and interconnect design work shall be performed by an Engineer that has met the ODOT prequalification requirements for Basic Traffic Signal Design and is familiar with the City of Columbus traffic signal systems engineering recommended practices, policies, standards and specifications. The Title Sheet shall be stamped and signed by the Traffic Signal Engineer preparing the traffic signal and interconnect plan sheets.

1.11. **PLAN REVISION:** Once E-plans are signed, any change to the plan requires a plan revision. Refer to a separate document titled "Procedure for Revision of E-Plan (Private Development)".

2. **SUBMITTALS:** Include the following with the submittal packet for the INITIAL "Plan Review".

2.1. Completed APPLICATION of submittal for review.

2.2. A copy of the official FINAL SITE COMPLIANCE PLAN that complies with the 'Submittal Requirements of Site Compliance Plan' and updated to incorporate all City Agency comments from the Preliminary Site Meeting.

2.3. TEN (10) SETS of folded prints.

2.4. **DIGITAL SUBMISSION:** Provide CD of electronic images, properly formatted, per instructions on page entitled "Electronic Image File" (at end of this document).

2.5. **SURVEY DOCUMENTATION:** Provide a statement with the 'Source Benchmarks' (at least one, preferably two) that are Franklin County monuments, each identified by the County's official designation and description, from which the project/site vertical and horizontal control are sourced from or have been tied back into. Provide the standard vertical and horizontal control method used and correction factors. Documentation shall include the survey firm and signed by the Surveyor.

2.6. **PROPOSED R/W or EASEMENT** if required by the improvement. The DOCUMENTS (survey exhibit and description on 8 1/2" X 14") shall be metes and bounds legal descriptions and exhibits prepared by an Ohio Certified Land Surveyor and must be sealed/stamped in blue ink. Easement documents must have the exhibit in PDF format and the metes and bounds legal description in a Word document. If it is for Right-of-Way (fee title transfer) it must be pre-approved by the appropriate County Engineer's Office. Right-of-Way documents must be in PDF format when emailed or sent – include a CD and hard copy originals. A hard copy of all legal descriptions and exhibit must be submitted with the E-Plan to the One Stop Shop and the originals must be sent to City's R/W Section with a cover letter describing the request (Right-of-Way and/or Easement) and the E-Plan number and Project Title. When submitting items directly to the City R/W Management send to the attention of Jerry Ryser, Public Service, Division of Planning & Operations, 50 W. Gay Street, Columbus, OH 43215. Any questions regarding the format of these documents and exhibits and processing can be directed to Jerry Ryser (614) 645-1584. Once the Right-of-Way and/or Easement has been approved by the Division of Planning & Operations, R/W Section, a deed (front end document) will be prepared by the City of Columbus attorney and emailed or sent back to the applicant to acquire the appropriate signatures. The applicant must return the original signed deed to the R/W Section. The R/W Section will notify the One-Stop-Shop, D&C Plan Review that they have received the executed deed (Right-of-Way and/or easement) necessary for this project and from their perspective the project may proceed for signature. City will then record the document(s) at the appropriate county and write legislation to have City Council accept, dedicate and/or name. Documents shall match the plans submitted at signature. Plan signature shall not occur until D&C Plan Review receives notification from City R/W Management that R/W documents (deeds or plat) are signed, approved and executed by the Owner(s).

2.7. **SITE GRADING PLAN:**

2.8. **STORM DRAINAGE DESIGN:** In accordance with the City of Columbus Storm Water Drainage Manual, latest edition.

2.8.1. Exhibits: Tributary map of drainage areas contributing to storm water flow in the R/W and onto the streets which are picked up by inlets and/or ditches and pipes.

2.8.2. Calculations: Pipe sizing, hydraulic grade line, pavement spread and depth, and inlet spacing/capacity.

2.8.3. Summary table and/or spread-sheets demonstrating compliance to City Storm Water Manual and Standards.

2.8.4. Report, signed and stamped by the Engineer registered in the State of Ohio, with summary and conclusions drawn from exhibits, calculations, and tables.

2.9. **NON-STANDARD ITEMS:** Submit manufacturer's data, test data, strength characteristics, installation instructions, maintenance requirements on non-standard items (pavers, brick, granite curb, etc.). Note that installation of non-standard items in the R/W may require a Maintenance Agreement be executed between the parcel owner and the City and shall be in place prior to plan signature.

2.10. **APPROVED PAVEMENT DESIGN:** When widening, extending an existing street or installing a new street, provide written documentation of the approved pavement design complying with the City's Policy and Procedure for 'Non-Residential Street Pavement Design' (refer to City of Columbus website).

SHEETS in the PLAN SET

“Sample” sheets of an E-plan can be found, for guidance, on the City of Columbus website.
<http://publicservice.columbus.gov/content.aspx?id=47082>

3. **TITLE SHEET: Refer to “E-Plan (Private Dev) Title Sheet” for layout format.**
 - 3.1. INDEX OF SHEETS: Lists the sheet title and sheet number.
 - 3.1.1. Sheets and information in the plan set should be titled and located in order indicated.
 - 3.1.1.1. Title Sheet
 - 3.1.1.2. Typical Sections
 - 3.1.1.3. General Notes
 - 3.1.1.4. Estimate of Quantities
 - 3.1.1.5. Maintenance of Traffic
 - 3.1.1.6. Storm Water Pollution Prevention Plan
 - 3.1.1.7. Demolition Plan
 - 3.1.1.8. Plan and Profile (Street)
 - 3.1.1.9. Cross Sections (if Street Widening)
 - 3.1.1.10. Details. (Intersections, Drives, etc.)
 - 3.1.1.11. Storm Sewer Profiles
 - 3.1.1.12. Survey Coordinate Data - Storm and/or Water
 - 3.1.1.13. Pavement Marking and Signing
 - 3.1.1.14. Traffic Signal & Traffic Signal Interconnect
 - 3.1.1.15. Street Lighting Plan
 - 3.1.1.16. Landscape Plan
 - 3.2. PROJECT DESCRIPTION: A brief description of R/W improvement and purpose of the improvement in the R/W (e.g. sidewalk; drive; road widening; turn lane addition; new street.)
 - 3.3. OWNER/DEVELOPER: Full name of property Owner or legal business entity with address, contact name, phone/fax numbers, e-mail. List same information for Developer if different than property Owner.
 - 3.4. BENCH MARKS: The benchmarks and control points shall be tied into, or sourced from, at least one, preferably two, Franklin County Monuments
 - 3.4.1. Provide the ‘Source’ monuments with the Franklin County Engineer’s official designation; description of the Monument(s); coordinates (northing, easting); and elevation. Provide the method used to establish site/project benchmarks and control points from the ‘Source’ and correction factor.
 - 3.4.2. Reference the Horizontal DATUM and Vertical DATUM used (refer to GENERAL REQUIREMENTS).
 - 3.4.3. List of site/project vertical and horizontal control points established for the project.
 - 3.5. BASIS OF BEARINGS: Bearings shall be referenced to an official record of deed, plat or road improvement plan that has the bearing used. If plat, deed or plan is not referenced, then provide how bearings are established with reference to monuments (give official designation) on which the bearings are sourced from, or tied to, and the survey basis.
 - 3.6. CONSULTANT/ENGINEER: Firm Logo (if applicable). Engineer’s Seal. Full name of firm with address, contact name (Responsible Engineer), phone/fax numbers, e-mail. Signature line for the Engineer of Record.
 - 3.6.1. NOTE: Additional requirement of Traffic Signal Engineer’s P.E. stamp and signature on plans containing traffic signal or interconnect work – see SECTION 1.10.
 - 3.7. PLAN TITLE:
 - 3.7.1. For the project, the Plan Title shall be the name of each STREET (on which improvements are proposed) and the limits of the improvement with reference by distance FROM/TO the R/W line of the nearest (public street) intersection **. Describe the work limits from SOUTH-to-NORTH and from WEST-to-EAST. Since R/W distance is always assumed, no reference to “R/W” is made in title. The directional relationship of the street should be abbreviated (e.g. E. Broad or N. High) unless the direction is a part of the streetname (e.g. North Broadway). Numeric streetnames are to be spelled out (e.g. 4th Street shall be shown as Fourth Street). Examples are:

- N. High Street FROM Broad Street TO Lane Ave. (work is on entire street or both sides).
- Indianola Ave. (west side) FROM 120'± south of E. North Broadway TO 375'± north of E. North Broadway.
- E. Broad Street (south side) FROM High Street TO 300'± east of Fourth Street.

** Note: When the R/W varies at the intersection, the limits of the improvement can be referenced by the distance FROM/TO the centerline (^C/_L) of the nearest intersection but is not preferred. If reference is made to the centerline of the intersecting street then so state in the title (High Street (west side) FROM 170'± north of ^C/_L of Broad Street TO 425'± north of ^C/_L of Broad Street)

3.8. INDEX MAP: (Minimum allowed 200 scale) (100 scale or 60 scale for small projects).

- 3.8.1. Outline the limits of the development and adjoining properties, both sides of street, with parcel ID Number on each parcel.
 - 3.8.2. Show corporation line(s) and jurisdictional boundaries. Add SIGNATURE APPROVAL LINES for entities having jurisdiction, as applicable.
 - 3.8.3. Show public streets forming the boundary of the site. Include (existing and proposed) R/W and curb cuts on each side of street. Show the existing street(s) along the entire frontage of the site being improved, up to and including the nearest public intersection - if distance is considerable, provide a "break" and dimension from the parcel corner property pin of the private improvement site to the nearest public road intersection and a dimension to the proposed access drive/street for the private improvement site.
 - 3.8.4. Show/label benchmark locations here and on the street plan view sheet.
 - 3.8.5. Show private property storm sewer lines and structures (numbered) related to the project.
 - 3.8.6. Show BEGIN/END of work along each street.
 - 3.8.7. Street or alley R/W Transfer/Sale: Show (phantom boundary lines) of any proposed transfer/sale of public R/W (street, alley, etc.) associated with the project and label the limits with the appropriate Ordinance #
 - 3.8.8. Below the lower right hand corner of the INDEX MAP, provide a list of drawings required by other City agencies that are associated with the project, such as: Site Compliance Plan, Storm (Private), Water Service, Sanitary, Mass Grading or other plan.
- ### 3.9. ZONING INFORMATION: Provide the development name; zoning case number; certified address; and City Council Ordinance Number. For those 'not applicable', notate as 'N/A'
- ### 3.10. LIST OF STANDARD DRAWINGS (ODOT and City of Columbus) and SUPPLEMENTAL SPECIFICATIONS: List the document number and date (issued) of all applicable to the project.
- ### 3.11. LOCATION (or VICINITY) MAP: Notate and show site location related to major arteries, 270, 70, 71, 670 and label Federal/State highways, and corporation limits where applicable.
- ### 3.12. SPECIFICATION: Statement of City Construction Material Specification applicable to the plan.
- ### 3.13. SIGNATURE APPROVAL LINES: (include disclaimer statement).
- 3.13.1. CITY OF COLUMBUS: sign-off by various Divisions
 - 3.13.2. OTHER ENTITIES: Provide signature line for other public entities having jurisdiction (e.g. County, Township, Municipality, State permit, etc.)
- ### 3.14. REVISION BLOCK: Plan revision table with column headings of 'revision #', 'description' of revision, 'sheet(s)' revised, initial, and date. Locate at the lower right hand corner of the sheet.
- ### 3.15. NOTICE FOR "OHIO UTILITIES PROTECTION SERVICE (OUPS)" containing contact phone numbers and website.
- ### 3.16. DRAWING NUMBER: Drawing # as **XXXX-E** and sheet number (page number system X/XX)
- ### 3.17. ODOT Title Block along the right side.

4. TYPICAL SECTIONS:

- ### 4.1. TYPICAL SECTIONS: Provide when improvements, or alteration, front an existing street.
- 4.1.1. Provide a typical section for each street from R/W line to R/W line including any easement required beyond the R/W. When the project is limited to work on one side of the street, it is acceptable to provide a typical section from the street centerline to the R/W line and any easements beyond R/W.
 - 4.1.2. A typical section shall be provided for each street and different situation along the street with station limits indicated. It shall include street centerline/baseline, existing pavement and proposed pavement

- (with build-up components), curb (curb or curb & gutter per standard drawing applicable), edge-of-pavement (E/P) on non-curbed streets, berm, shoulder, ditch (or tree lawn), underground utilities, pedestrian facility, ratio or % slopes, R/W and any easement(s) as applicable. Follow ODOT drafting standards to label, dimension, illustrate and legend key information.
- 4.1.3. Drives: Provide a typical section of the drive(s) with a legend illustrating the pavement build-up, curb, with a legend of components. For RI/RO drives, the Typical Section should include a cut through median. Details of construction shall be provided as necessary.
- 4.1.4. LEGEND: List ITEM first thickness if applicable, and description per CMSC, latest edition.
- 4.2. TYPICAL SECTIONS: When widening an existing street or installing a new street, additionally provide in the Typical Section for each street the following:
- 4.2.1. Street name with (ADT design for the street in parenthesis)
- 4.2.2. Typical section of Street, full width to the R/W lines, with build-up components labeled.
- 4.2.3. Pavement legend of street build-up (pavement type, base, sub-base, curb/gutter, under-drain, sub-grade, etc.) with material, work item, thickness of each component. The pavement section used in the design shall be as approved in writing following the City's Policy and Procedure on 'Non-Residential Street Pavement Design'.
- 4.2.4. Street centerline stationing. Define the street limits and any transitions by station number.
- 4.2.5. Pavement Quantity: Show unit quantity of pavement in square yards for each street.
- 4.2.6. If proposed work is a continuation of (or adjoins) an existing street, verify that the proposed typical section conforms, as a minimum, to that of the existing street. Where existing record plans do not exist or pavement build-up (thickness and composition) is not shown on a record plan, borings to determine pavement build-up of existing streets is required. Provide the information with the initial submittal for review and approval of the 'proposed' pavement section.
- 4.2.7. Widening: If widening is proposed on an existing street, the existing street is to be planed and overlaid using Item 448 as the surface course over the existing and proposed as determined by the City.
5. **GENERAL NOTES:** General notes addressing compliance to CMSC, latest edition; notification/contact information; construction and work requirements; restrictions; utilities; infrastructure protection; item specials; access limits; et cetera. Refer to sample plan set on the City's website.
- 5.1.1. Provide General Notes as applicable per the 'Commercial (Private Development) Sample Plan Sheets located on Department of Public Service website. Note: Section Headings on the 'sample' sheet is for guidance on plan preparation and not to be repeated on the construction plans. The 'REQUIRED PLAN NOTES' should be as written and other notes shall be as indicated in the other sections and applicable to the project
- 5.1.2. Do not comprise notes that are repetitive of or contrary to, the CMSC information.
- 5.1.3. Any 'As per Plan' item must have a note or detail associated with it describing what differs from the standard CMSC item.
- 5.1.4. Items that are completely unique and are not contained in the CMSC shall be designated as 'Item Special' and a note or detail included that fully describes the item.
- 5.1.5. Provide a "Legend" for symbols, abbreviations, and line designation used uniformly throughout the plan.
6. **ESTIMATE OF QUANTITIES:** Complete and accurate listing of ALL items of work in the R/W shown on the plan:
- 6.1. COLUMN 1: CMSC Item No. using the Construction Materials Specification, Columbus OH, latest edition.
- 6.2. COLUMN 2: Quantity
- 6.3. COLUMN 3: Unit of measure.
- 6.4. COLUMN 4: Description as found in CMSC.
- 6.5. Include demolition and removal items.
- 6.6. Include items not covered in the City's specification and notate on the plans (e.g. ODOT catch basin, culvert, guardrail, Item 'Special')
7. **MAINTENANCE OF TRAFFIC (MOT):** Each plan requires a detailed MOT plan with the following items, in part or in full, as determined by work to be performed, and specific to the plan. The MOT shall be designed to allow the least inconvenience to motorist and pedestrians alike while offering the safest alternative.

- 7.1. Detailed temporary traffic control notes shall precede the MOT detail drawings. Refer to the City website, Department of Public Service, Division of Design and Construction section for Temporary and Permanent Traffic Control Notes to be used.
 - 7.2. MOT detail drawings shall include phasing & all geometric features including existing pavement markings and signing.
 - 7.3. Any temporary pavement shall be shown and detailed.
 - 7.4. If phased, each phase shall include a description of the proposed work. Each MOT phase shall include all proposed construction in that phase and the completed construction of the previous phase.
 - 7.5. MOT plan shall extend a minimum of 200 feet beyond first and last temporary traffic control device on mainline street and a minimum of 200 feet on side streets. The proposed temporary traffic control shall be shown as bold lines along with the existing traffic control shown in lighter line weight.
 - 7.6. All temporary traffic control signs, drums, flashing arrow panels, portable changeable message signs, tapers, lane widths, pavement marking words with dimensions, temporary signal poles, signal heads, etc., shall be shown at appropriate locations (stations, sign legends, sign codes, sign sizes) shall be included.
 - 7.7. Signs, barricades, flashing arrow panels, portable changeable message signs, etc. and their locations may be identified by a ballooning-numbering system. All signs, barricades, etc. shall be shown on a key-legend format corresponding to each balloon. The key-legend shall be on the same plan sheet as the schematic and used uniformly throughout the plan. All signs shall include legend, sizing, color, codes, etc.
8. **DEMOLITION PLAN:** For clarity on the Plan & Profile sheets, it is recommended that a separate plan view or separate sheet show items in the R/W for demolition and site preparation. Do not repeat showing the items on the Plan & Profile sheets that have been removed on Demolition plan and are not being replaced. Provide the disposition (remove, replace, relocate, salvage, etc.) of those items disturbed on the Demolition sheet and the location of those items in final configuration on the Plan and Profile sheets as replaced, or relocated along with the existing items that remain 'as is' and any proposed items. In no case shall items that existed that were removed be shown on the Plan and Profile sheets. Describe by item and limits or coded letter/number with legend description. Existing drives or access along road frontage, abandoned or no longer used, are to be shown for removal and area re-graded to fit surrounding terrain.
9. **PLAN & PROFILE (For improvements along EXISTING STREETS):** (20 scale H and 5 scale V; 10 scale or larger for downtown or dense urban/commercial areas). Plan & Profile should be the final configuration of the proposed improvement with the existing features that remain by use of solid and dashed lines respectively.
- 9.1. *Provide a separate Plan/Profile to show entire R/W width and length of each street* on which the parcel being improved fronts. Show site property line to adjoining neighbor(s). If site fronts an intersection, then include all legs of the intersection, within the entire R/W, to 20 feet beyond the PT. For signalized intersections, it is required that the entire width of street to (minimum) 200 feet beyond the intersection be shown, along with all pavement markings and signs.
 - 9.2. **R/W, Easements and Encroachments:**
 - 9.2.1. Boundary lines shall be shown and labeled including existing R/W, proposed R/W, easements, governmental boundaries and property lines. Dimension the existing/proposed R/W from street centerline and full width of the R/W.
 - 9.2.2. Easement limits for existing sidewalk or existing roadways shall be shown with deed book and page number or instrument number. Show/label/dimension limits of proposed easements.
 - 9.2.3. Show any existing vacated R/W (with ordinance number) contiguous to the site being improved. Show any proposed R/W transfer (sold) with ordinance number (once obtained).
 - 9.2.4. Doors that swing open (from private parcel) into the R/W are not permitted. Recess into building.
 - 9.2.5. Any items encroaching into the R/W (e.g building foundation, foundation tie-backs, awning, balcony, cornice, walls, steps, handrails, etc.) are not allowed, unless approved. If prior approval has been obtained through the City's R/W Section, provide the documentation giving said approval by the City and show the encroachment, clearly labeled and dimensioned, identifying what it is along with a Detail and Elevation view (if aerial or above grade) of the encroachment and its relationship to the R/W, street and adjoining features. Work with the City R/W Section to consummate related documents, agreements, permits, easements and fees as required by the City.
 - 9.2.6. Show and label benchmarks or any survey control points located within the Plan/Profile limits.
 - 9.3. **Street:**

- 9.3.1. Centerline of survey stationing shall be on the street centerline, unless approved otherwise. If a construction line other than the street ^C/_L (e.g. ^C/_L of R/W) is approved, provide offset dimensions from the construction line to the street ^C/_L. Stationing should be clearly labeled every 100 ft with tick marks at 50 feet.
- 9.3.2. Provide BASIS OF STATIONING statement on each street plan & profile sheet. Basis of Stationing statement shall use established stationing from previous street construction plan with reference to the previous plan number. When stationing has not been established by a previous plan, provide a statement of how stationing was established for this plan.
- 9.3.3. Label the street name along the centerline of the street with the associated street construction plan number by which it was constructed.
- 9.3.4. Show/label the face-of-curb (F/C) or edge-of-pavement (E/P) and 'berm' edge on each side of street and dimension the street width to F/C or E/P.
- 9.3.5. Show street intersections labeled with 'Streetname' and station of each street centerline at point of intersection and alignment angle. If the street is a 'private' street (not in City R/W) then label street as 'Streetname (Private)'.
- 9.3.6. Locate and label tapers, transitions, deflections and tie-in points for pavement, pedestrian facilities, curbs, medians, et cetera.
- 9.3.7. Identify any existing sandstone curb or paving brick in good condition that is being removed or replaced and specify that it is to be salvaged for re-use or delivered to City of Columbus, Division of Planning and Operations, 25th Ave Maintenance Facility (include COC Standard Note).
- 9.3.8. Provide a street or curb profile. When profile is not provided, provide elevations at key points (e.g. top of castings) and (top-of curb or edge-of- pavement/berm or shoulder/ditch bottom/front of walk) every 50 feet along the project.
- 9.3.9. Locate existing and proposed curb cuts (drives, private streets) on both sides of the street to the R/W line. Locate and label the ^C/_L and alignment of each proposed drive to the ^C/_L station of the street and dimension the drive (throat) width. Clearly label any existing drives abandoned or removed and notate that the areas is to be re-graded, drive pipe removed with ditch and flow-line re-established if on an uncurbed street, top-soiled, seeded and mulched.
- 9.3.10. Show, label and station the limits of pavement repair, replacement, widening, mill and overlay.
- 9.4. Pedestrian Facility:
 - 9.4.1. Show, label and dimension the existing and proposed sidewalk or shared-use-path along the entire frontage of the site to be developed.
 - 9.4.2. Engineer shall verify that any existing pedestrian facility is compliant for ADA accessibility and if not, then replace to make compliant.
 - 9.4.3. Sidewalk widths, when separated from the curb, shall be a minimum 5 feet for commercial sites. If directly behind curb consult Standard Drawing 2300 for 'non-residential'.
 - 9.4.4. Shared-use-paths shall be per Standard Drawing 2310.
 - 9.4.5. Walks or shared-use-paths subject to vehicle traffic shall be thickened (Standard Drawing 2303) and the limits shown and labeled.
 - 9.4.6. Show, label and dimension existing walk that remains and station the tie-in point of proposed walk with a notation to tie-in by a saw-cut at nearest joint and installing expansion joint material.
 - 9.4.7. At intersections, show the location and ^C/_L alignment of the existing ADA ramps (and detectable warnings if any) on all corners. The Engineer is required to verify that the ramps are ADA compliant. For ramps that are compliant and are to remain, label as 'Existing ADA compliant ramp DND' (Do Not Disturb), if not compliant, they may need to be replaced and made compliant - refer to the Scope of Improvements issued by the Department of Public Service, Division of Planning and Operations.
- 9.5. Streetscape: Show and label any existing streetscape features (brick, pavers, trees, tree grates, planters) that remain.

NOTE: Proposed streetscape, non-standard (materials other than shown on the Standard Drawing) or special features in the R/W require approval by the City, through the Division of Planning & Operations, prior to being shown on construction plans. These items may include, but are not limited to, brick, granite curb, pavers, stamped or colored surfaces, landscape beds, ornamentals, planters, etc. If approved, such items will require special permitting or a Maintenance Agreement.

9.6. **Parking:** Locate and label 'on-street' parking slots and account for parking meters. Any permanent removal of a parking meter, or change to the existing parking array, requires the approval by Division of Mobility Options, Parking Services Support, contact 645-7890. Written documentation of approval for permanent removal of any meter, or change to the existing parking array, shall be provided and is required for plan approval.

9.7. **Utility and Infrastructure:**

9.7.1. Show and label all existing and proposed utilities (water*, sewers*, electric, telephone, fiber optic, cable, gas, interconnect, conduit runs, duct banks*, structures, control boxes, light fixture, vaults, tunnels, hydrants, valves, poles, traffic signs, traffic signal loops, etc.). *Provide size.

9.7.2. Show and label proposed storm sewers; storm structures with structure #; station & offset location (left/right of street centerline) of each structure, and top of casting elevations. Refer also to section entitled "STORM PROFILE". Storm structures shall have a numerical identifier and tied to the profiles and utility survey coordinate data.

9.7.3. Where other proposed work connecting to public utilities (water service, private storm, sanitary) is being done under a separate plan, indicate the work is 'installed by that plan#' and reference the plan # (CC# or WSP#) by which the work is being done.

9.7.4. Show in plan and elevation subterranean structures (e.g. vaults, basement, foundation) in downtown, University area or heavy commercialized areas) located in the R/W within the limits of work. Show details of any proposed work required.

9.7.5. Show details of work (e.g. tie-backs, sheet pile) on the private side of the property that would project into the R/W. Show infrastructure and utility items within the influence.

9.8. **Other:**

9.8.1. Show a BEGIN and END of work limits of the project along each street with station and offset.

9.8.2. Locate (station, offset) tapers or offset alignments of street, curbs, walks or paths.

9.8.3. Show reference to other sheets numbers for "Detail" related to plan view (e.g. "see sheet 7 for Intersection Detail"). Match lines shall be labeled on sheets as applicable.

9.8.4. Provide a "Legend" for coded notes. Include legend for symbols, abbreviations or line designations if not provided in the General Notes Section.

10. **PLAN & PROFILE (for NEW STREETS):**

10.1. **SCHEMATIC PLAN:** When constructing new streets, street extensions, or street relocation, provide a Schematic Plan sheet. Refer to the Capital Improvement Project (CIP) 'sample' Plan Section on the City website for guidance. Include horizontal and vertical control point locations with respective coordinate information (table format) on the sheet.

10.2. **STREET PLAN (on Plan & Profile Sheet):** Plan view with name of street and limits of the street by station number. Plan view shall include:

10.2.1. Existing infrastructure and features being connected to. Provide plan numbers of applicable record plans.

10.2.2. BASIS OF STATIONING statement: Provide BASIS OF STATIONING statement on each street plan & profile sheet. Basis of Stationing statement shall use established stationing from previous street construction plan with reference to the previous plan number. When stationing has not been established by a previous plan, provide a statement of how stationing was established for this plan.

10.2.3. Label and station the BEGIN PROJECT and END PROJECT on each street.

10.2.4. Station along street centerline, intersections with other streets, and drive centerlines.

10.2.5. Show street intersections labeled with 'Streetname' and station of each street centerline at point of intersection and alignment angle. If the street is a 'private' street (not in City R/W) then label street as 'Streetname (Private)'.

10.2.6. Survey bearing of street centerline and length of street.

10.2.7. Centerline data (Δ , R, T, L, etc.) on the street. When street has a horizontal curve, provide centerline data and bearing before and after curve.

10.2.8. Curb data (Δ , R, T, L, etc.) for each curve.

10.2.9. Identify all control points with stationing such as PC, PT, etc.

10.2.10. Grade break station(s). Maintain a minimum of 300 feet between grade breaks or PVI's.

10.2.11. R/W line and easements clearly defined and labeled.

- 10.2.12. Dimensions showing width of street, R/W, and easements.
- 10.2.13. Water line, bends, valves, and fire hydrants. Locate by station number, and offset. Show location of any water services.
- 10.2.14. Storm sewer with pipe sizes. Storm structures with structure #, station location, reference dimension left/right of street centerline.
- 10.2.15. Sidewalks.
- 10.2.16. Location of pavement relief joints.
- 10.2.17. Sanitary sewer pipe and structures.
- 10.2.18. Street lights with station locations.
- 10.2.19. Electrical conduit crossings and pull-boxes. Locate by station and offset.
- 10.2.20. Miscellaneous Items: Show utility sleeve locations, temporary barricades, temporary outlet ditches for underdrain discharge from end of proposed pavement, temporary easements for storm sewer or underdrain outlets, and other necessary easements – either platted or deeded.
- 10.2.21. Provide a “Legend” for symbols and/or coded notes
- 10.2.22. Show the limits of each phase if construction is phased on the plans
- 10.3. **STREET PROFILE (on Plan & Profile sheet):** Elevation view. Locate view below the “plan view” and include:
 - 10.3.1. Begin project and end project station and elevations.
 - 10.3.2. Existing grade profile.
 - 10.3.3. Street profile grade (each curb line shown), % slope.
 - 10.3.4. Vertical curve data with length of curve, station and elevations at PVI, PVC, along curve, and PVT.
 - 10.3.5. Intersecting streets with stations and elevations of intersecting centerline, PC, curb lines/edge of pavement.
 - 10.3.6. Water line profile with elevations, pipe size, minimum cover, % slope, concrete backing and compaction requirements.
 - 10.3.7. Utility crossings with name of utility, size, elevations.

11. CROSS SECTIONS: (Required when WIDENING an existing street or installing a NEW STREET).

- 11.1. Plans shall be on 1” grid, dotted ½-foot increment, with 5’ foot vertical and 5’ horizontal scale.
- 11.2. Intervals between regular sections shall normally be 50LF.
- 11.3. Stationing shall increase from bottom to top of sheet.
- 11.4. Show/label Ex. RW, Proposed RW, easements beyond the R/W and work limits.
- 11.5. Show/label all proposed and existing underground utilities.
- 11.6. Limits of existing pavement shall be shown.
- 11.7. Existing features shall be shown in dashed lines & proposed features shall be solid lines.
- 11.8. Show/label fences, walls, walks, and paths.
- 11.9. Label proposed/ existing T/P (Top of Pavement) elevations.
- 11.10. Labeling of the sections shall follow the Standard Drawing for each area. Label slope grades.
- 11.11. Ditch line elevations & flow arrows.
- 11.12. Drive profiles with % slopes shall be included within the sections, preferably extending out to 25’ beyond limit of drive work. Drive profiles not falling on a full section shall be shown on a partial section.

12. DETAILS:

- 12.1. **DETAIL-DRIVE:** Plan view (10 scale) of each, entire drive.
 - 12.1.1. Engineer shall verify that any existing drives that remain are compliant for ADA accessibility and if not then made compliant. Existing drives that are ADA compliant and remain, shall have the PAR outlined with dashed lines with the % slope notated.
 - 12.1.2. Title the view “DETAIL – DRIVE on (Street Name) @ STATION ____ + ____”
 - 12.1.3. Show the entire drive, geometric, dimensions and centerline alignment of the drive to the street centerline.
 - 12.1.4. Label the BEGIN and END of curb cut on each drive (station/offset).
 - 12.1.5. All details shall show Right-of-Way lines, easements, work area, all infrastructure and topographic features that will remain in the final configuration. Show and label street edge or curb line, and all infrastructure that is proposed or existing that remains (e.g. catch basins, MH, valves, poles,

utility, valves). Dimension street centerline to R/W. Dimension street centerline to edge-of-pavement (E/P) or curb face.

- 12.1.6. Provide “curve data” on curb or E/P.
- 12.1.7. Provide elevations at E/P or curb face along the street at the PC, PT, and centerline of the drive entrance. For restricted access drives, such as a RI/RO, show the island, traffic lanes and pedestrian (walk or shared-use-path) cut-through with dimensions, key elevations, and corner radii.
- 12.1.8. The high point for drainage of drives shall be at the R/W line, directing drainage in the R/W to streets. Where this can not be accomplished, locate inlets on the private property near the R/W line and drain accordingly. Provide surface elevations of the drive at the R/W with elevations to show drainage flow both ways. Show drainage pattern on the approach, in the R/W, with flow arrows and % slopes. Maintain positive drainage to inlets.
- 12.1.9. If any structures (storm, sanitary, electrical, etc.) remain within limit of work, provide a structure number, location (station & offset) and top of casting elevation.
- 12.1.10. See CRITERIA FOR ADA ACCESSIBILITY.

12.2. DETAIL- STREET INTERSECTION: Plan view (10 scale) of each, entire street intersection.

- 12.2.1. Engineer shall verify that the intersection, or portion for which they are responsible, are compliant for ADA accessibility and if not then made compliant.
- 12.2.2. Title the view “DETAIL – INTERSECTION of (Street Name) AND (Street Name)”
- 12.2.3. Show entire intersection geometry to the R/W lines and minimum 10 feet beyond the point-of – tangent, with all features and surface infrastructure (proposed and existing that remain) in final configuration, including the opposite side of the street. Provide all necessary information, such as curb data, curve radius, dimensions, station/offsets, and elevations for constructability of the proposed work and ensuring positive and complete drainage. Show and label existing and proposed ADA ramps. Existing ADA ramps that are verified compliant and remain shall be notated as ‘existing ADA compliant ramp (DND)’.
- 12.2.4. Locate and station the C /L of the ADA ramps to the C /L station of the street when C /L of ramp is perpendicular to the C /L of street, otherwise provide the station/offset where the ramp C /L intersects the street curb.
- 12.2.5. For signalized intersections:
 - 12.2.5.1. All traffic control items shall be shown to include, but not limited to, signal pole and pushbutton locations; loop detection; signal span with signal heads and overhead sign type and location; signal control box; mast arms; pedestrian heads; pedestals; street name signs; lane control signage; all signage within R/W; and pavement markings to include entire lane markings. Pavement markings at signalized intersections may extend the work limits. If work involves pavement markings, then all elements associated with those markings and lane lengths shall be shown.
 - 12.2.5.2. When a new signal is being installed as part of the project, provide all ramps for full ADA access to cross each street and/or drive under signal control.
- 12.2.6. See CRITERIA FOR ADA ACCESSIBILITY.

13. CRITERIA FOR ADA ACCESSIBILITY:

- 13.1. Fully comply with the latest edition of City of Columbus Rules and Regulations “Wheelchair Ramp Requirements” effective March 5, 2011.
- 13.2. The PAR (Pedestrian Access Route) is defined as ADA compliant; minimum clearance of 48” wide ~~by~~ ~~80” high~~ clear of any obstruction, encroachment, handrail projection or doors swing; and continuous across parcel frontage, crossing streets, alleys and drives. The PAR shall be in the R/W or in a public access easement for any portion that is outside of the R/W.
- 13.3. Provide a continuous, ADA compliant, pedestrian facility along the project limits in accordance with City standard drawings 2300 (sidewalk), 2310 (shared-use-path) and 2319 (ramps).
- 13.4. Infrastructure located at an intersection can be affected by the ADA ramps. It is recommended that ADA ramps be located early in the design process to reconcile any conflict.
- 13.5. For street crossings, the ADA ramp shall be radial with the centerline aligned perpendicular to the curb. Drives serving large commercial areas or signalized drives shall be designed as a street with ADA ramps oriented similar to a “street crossing”.

- 13.5.1. ADA ramps shall be perpendicular to street curb with a running slope of 5% to 7.7%; located within the “Curb Ramp Design Boundary”; aligned with each other; have a detectable warning and ADA compliant in accordance with the standard drawings. On non-curbed streets, an ADA access path may be installed rather than a ramp.
- 13.5.2. Where the parcel on only one corner of a public road intersection is owned and being improved, install the companion ramps on the opposite side of the street as required.
- 13.5.3. Where ramps on the Developer’s corner exist AND are compliant, notate as “existing compliant ramp (DND)” and provide the location (station, offset of ramp centerline), configuration, orientation and relationship to the companion ramp location on the opposite side. It is the Developer/Engineer’s responsibility to verify existing ramps are ADA compliant and Developer’s responsibility for replacement if determined later by the City to be non-compliant.
- 13.5.4. For signalized intersections ADA compliant ramps and companions are to be provided.
- 13.5.5. Where a pedestrian crossing at an intersection is prohibited, no ramps are to be installed and required signing shall be in place or the required signs installed if none currently exist.
- 13.6. On standard private drives and alleys, the ADA ramp/access is parallel to the street (Standard Drawing 2319). On a typical drive or alley approach, every attempt should be made to get the PAR (Pedestrian Access Route) crossing the approach to sidewalk level thereby eliminating any transition. This is done by increasing the slope (max 8%) of the drive approach from the curb-line or E/P to the front of the PAR. If a panel is required to transition the sidewalk-to-the-approach and the joint at the walk/drive edge intersect on a skew, there can be no change in plane at the skew joint. Locate the end of the transition panel where the front-of-walk intersects the approach (see Standard Drawing 2319). Provide a common plane across the skew joint and establish elevations at each corner (of common plane). Drain from the walk to the drive and from back-of-walk to the street. NOTE: Drives serving large commercial areas, or signalized drives, designed as a street shall follow requirements of a “street crossing” with ADA compliant access provided on each side of the drive.
- 13.7. Show all transition components. Provide elevations of corner points of landings, ramps, and transitions. Notate % running slope on ramps/transitions.
- 13.8. Provide ramps with walkable or non-walkable flares as appropriate. A non-walkable flare on ramp adjoining a walkable surface is not permitted.
- 13.9. Maintain maximum specified cross-slope within boundary of the PAR. Show PAR by phantom lines. Notate % cross-slope (max 1.56%) on the PAR through drive approaches, street crossings and landings.
- 13.10. Verify a ‘landing’ is provided wherever a (public to private) walk intersects or a wheelchair turns.
- 13.11. Detectable warnings are required on ADA access points across streets, alleys and signalized drives (drive under signal control). Detectable warnings are not required on a private (non-signalized) drive unless deemed necessary. Where streets are not curbed, locate the detectable warning behind the gravel berm.
- 13.12. Pavement markings (cross-walks, stop bars), signs and traffic signal facilities (e.g. loops, push buttons, poles) may be affected by ADA and shall be adjusted accordingly.
- 13.13. ADA access must be provided to push buttons (refer to ‘Wheelchair Ramp Requirements’ for location/orientation) at proposed and existing signalized intersections and/or drives. Pushbutton shall be shown with the ADA access detail. The developer is responsible to provide ADA compliant signal facilities in the R/W contiguous to their property and crossings to the opposite side as determined by the City.

14. STORM SEWER PROFILE: Elevation view showing profile of storm sewer in the R/W with:

- 14.1. Structure shall have numeric identifier tying structures to the plan views.
- 14.2. Structure number with station location.
 - 14.2.1. Elevation of pipe IN/OUT and top of casting.
 - 14.2.2. Type structure and type casting.
 - 14.2.3. Other inlets (or knock-outs) into structure, with pipe size, direction of entry, and invert.
- 14.3. Pipe size with grade (% slope). Pipe length.
- 14.4. Street centerline @ street crossings labeled with name of street.
- 14.5. Backfill material and compaction requirement over each length of pipe between structures with limits stationed.
- 14.6. Concrete encasement requirements (CMSC 901.12 and 910) with limits stationed.
- 14.7. Profile of existing grade and proposed grade.

- 14.8. Show the limits of each 'part' or 'phase' above each profile if construction is 'parted' or 'phased'.
- 14.9. Label name and size of existing and proposed utilities (public and private).
- 14.10. Other information as required by the Department of Public Utilities, Division of Sewers and Drains.

15. PAVEMENT MARKING AND SIGNING:

- 15.1. When roadway improvements are being performed, on a separate plan view, show all existing and proposed permanent traffic control items within the project limit. The plan shall indicate lane use, lane width and alignment as proposed.
- 15.2. The traffic control plan shall include all roadway items including but not limited to, curb lines or edge-of-pavement, drives, medians, all islands, sidewalk with curb ramps, all curb cuts, final Right-of-Way (R/W) lines, easements, street names, utility poles, signal poles and signal items, manholes and pull boxes, parking meters when applicable, marked crosswalks distinguish if painted, brick or both, street lighting, street side trees, and hydrants.
- 15.3. Existing and proposed permanent pavement markings shall be shown - include only the existing markings that have NOT been removed within the project limits. Existing markings may include those outside the project limits for alignment purposes and shall include the area minimum 200' past the projects limits on the mainline or to the nearest intersection and 200' on side streets. All intersections shall be shown in full.
- 15.4. Permanent existing and proposed signing shall be shown in full with the same limits as the proposed pavement markings. All existing signing shall be shown as removed with the exception of those outside the project limits shown for plan review purposes only and proposed signing. Each proposed sign shall show the sign symbols if existing and the sign text. The sign code, size, state pole mounted when applicable, and station shall be included for each sign. Offset stationing when required.
- 15.5. Proposed markings shall be labeled, stationed and include a legend with type marking material.
- 15.6. Raised pavement markers (RPM) shall be shown. A word document or autocad drawing set may be obtained from the traffic control plan reviewer for RPM spacing requirements. Contact the traffic control plan reviewer for Inlay Marking specifications.
- 15.7. For traffic control requirements at signalized intersections, refer to the City of Columbus Traffic Signal Design Manual.
- 15.8. Refer to the City website, Department of Public Service, Division of Design and Construction section for Temporary and Permanent Traffic Control Notes to be used.
- 15.9. All projects shall comply with the requirements set by supplemental specification called (SS-1630) *'Installation of Ground Mounted Signs and Sign Supports'*.

16. TRAFFIC SIGNALS:

- 16.1. Refer to the City of Columbus Traffic Signal Design Manual.
- 16.2. Obtain additional information by contacting the Department of Public Service, Division of Design and Construction-Signal Design Staff.

17. LIGHTING:

- 17.1. Location and station of street lights, street crossings, pull boxes, conduit, conductors.
- 17.2. Provide stationing and offset on pull boxes. Verify no interference with other structures.

18. LANDSCAPE PLAN:

NOTE: Refer to City of Columbus Website - 'Sample E-Plan' sheets for format.

ELECTRONIC IMAGE FILE
FOR
E-PLANS ON CD

1. All projects shall have a compact disc submitted for each plan submittal of the project.
2. The disc shall contain a Tiff image of each sheet of the plan set being submitted.
3. Each disc shall be submitted in a transparent, hard plastic case that is labeled with the project name, E-Plan number, and Consultant name.
4. All images must be submitted "Right Side Up", meaning viewable as if you are reading them.
5. All images must be submitted at: 1 BIT with compression of: CCITT Group 4 FAX and a resolution of 300dpi (min). (TIFF MSB CCITT G4 MSB.tif) This is (black line & text) on a white background. (No color images due to size constraints).
6. Each plan sheet Tiff file shall include the project number and the sheet number as shown below:

E0plan number_(three digit sheet number).tif

NOTE: The "0" after the "E" is a zero not the letter "O".

Examples:

At INITIAL submittal

Once PlanNumber is assigned (#1553 in this example)

***E0XXXX_001.tif
E0XXXX_002.tif
E0XXXX_003.tif
Etc.***

***E01553_001.tif
E01553_002.tif
E01553_003.tif***

7. At the time the mylars are submitted for signature, include with that submittal a CD containing a TIFF image with all final plan features of each plan sheet (as described and labeled above) and the base map in .DWG format. If the size of the plan set is too large to fit on one CD, then submit a CD with the TIFF images and one with the .DWG file.
8. Include on the CD, the electronic document or image of the written summary of responses to the (Division of Design & Construction) comments from the previous review.

If you have any questions concerning these standards, you may contact Don Tobias at 614-645-8799 Division of Design and Construction.

Street Construction Plans - The Division of Design and Construction requires that both paper and digital copies (.tif) of each plan sheet be submitted concurrently with each submission for plan review.

A failure to provide this digital information will result in the Division's refusal to accept said plan submissions for review. All .DWG format features shall be prepared in conformance with the City's adopted Digital Submission Standards. Any submissions determined to be incomplete, inaccurate, or non-compliant shall require correction by the applicant before the E-Plan will be fully approved and/or signed by the City.